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IEEE

STANDARDS COORDINATING COMMITTEE 28
NON-IONIZING RADIATION

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Research Division
131 Spring Street
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November 4, 1993

Office of the Secretary
Federal Communications Commission
1919 M St., N.W.
Washington, D.C. 20554

Dear Sirs:

I am submitting the enclosed comments with regard to the proposed adoption of ANSI/IEEE C95.1-1992 by the FCC (ET Docket No. 93-62). These comments were prepared according to IEEE rules by an "interpretations subgroup" of SCC 28 formed in June, 1993. The Chair of this group was Dr. Eleanor R. Adair and the membership of the group was the following: E. R. Adair, Q. Balzano, H. Bassen, J. Bergeron, J. Cohen, O. Gandhi, A. W. Guy, J. M. Osepchuk, R. C. Petersen, C. Sutton and R. Tell.

Sincerely,

John M. Osepchuk

John M. Osepchuk
Executive Secretary

JMO/smc

Enclosure

cc: Dr. T. F. Budinger, SCC 28 Chair
Dr. E. R. Adair, Interpretations Working Group Chair
Ms. K. DeChino, IEEE Standards Department
Mr. Andrew Salem, Secretary, IEEE Standards Board

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D. C. 20554

In the Matter of	)	
	)	
Guidelines for Evaluating the	)	
Environmental Effects of	)	ET Docket No. 93-62
Radiofrequency Radiation	)	

COMMENTS OF THE IEEE - SCC 28
PREPARED BY THE SUBCOMMITTEE 4
WORKING GROUP ON INTERPRETATIONS

1. The Subcommittee 4 (SC-4) of the Institute of Electrical and Electronics Engineers (IEEE) Standards Coordinating Committee 28 (SCC 28) active under the IEEE Standards Board submits these comments in the referenced matter.

2. Since the guideline (IEEE C95.1-1991) proposed for adoption by the Federal Communications Commission was developed by SC-4 of SCC 28 on a voluntary basis, and such guideline is used on a voluntary basis as well, it is inappropriate for the SCC 28 to endorse the choice of its own guideline by the FCC.

3. The IEEE C95.1-1991 guideline, having been adopted by the American National Standards Institute (ANSI), is now specified as ANSI/IEEE C95.1-1992. It is important to recognize that this guideline, like its ANSI predecessors, must be considered a "living document", and is designed to be continually in the process of revision and refinement as additional research reports appear in the archival literature. Indeed, the designated standard is already in the process of revision by SC-4 of IEEE - SCC 28. Many of the several issues raised by the Commission in its Notice of Proposed Rule Making (NPRM) are matters that can only be addressed in terms of possible revisions of the existing guidelines, a process that requires approval by consensus of both the developing Subcommittee and the members of SCC 28, and final approval by the IEEE Standards Board.

4. One of these issues, relating to the discontinuity of treatment within the FM band (Paragraph 22 and Footnote 24 of the NPRM), has already been addressed during the process of reaching consensus on the C95.1 guideline within the SC-4 which developed it and also during the period when the ANSI considered an appeal of its November 18, 1992 adoption of IEEE C95.1-1991. It was made clear to ANSI at that time that the discontinuity of treatment within the FM band was based upon biological considerations rather than those involved in spectrum allocation. Letters from Dr. Om P. Gandhi (Co-Chairman of SC-4), dated March 18, 1992 and July 23, 1992, were

submitted to the IEEE Standards Department as responses to the objections of Hammett and Edison, Inc. in this matter (Paragraph 22 and Footnote 24) and formed part of the basis for rejection of the appeal by ANSI.

5. Additional issues raised by the Commission that must be categorized as other than simple interpretations of the ANSI/IEEE C95.1-1992 guideline include the following: Existing Categorical Exclusions, except as they involve "occupational" exposure vs. exposure of the "general public" (Paragraphs 19, 20 and 21; Footnote 23); Comments on Alternative RF Exposure Guidelines (Paragraphs 23, 24 and 25; Footnotes 26 - 30); and Effective Date and Related Issues, including Documentation (Paragraphs 28 and 29; Footnotes 31 and 32).

6. At its most recent meeting in June of 1993, the members of SC-4 of IEEE SCC 28 established a balanced, 11-member Working Group on Interpretations in accordance with the IEEE Standards Operations Manual, Section 5.9 on Interpretations. This Working Group has considered two of the issues raised by the Commission as falling within the scope of its charge: these issues relate to a) the definitions of "controlled" and "uncontrolled" environments (Paragraphs 12 and 13, Footnote 16), and b) the decision by the Commission (Paragraph 16, Footnote 16) that "hand-held portable devices must comply with the requirements specified for uncontrolled environments. . ". These issues are discussed below.

7. From a reading of Section 6. Rationale (pages 23-24 of IEEE C95.1-1991), the intent of the definitions of "controlled" and "uncontrolled" environments should be clear to all. During the development of the standard, the question of the need for two tiers of the MPE (perhaps to distinguish occupational from general public exposures) was debated at length. The standard specifies in Section 6. Rationale that SC-4 explicitly rejected occupational vs general population as categories on the grounds ". . . that no reliable scientific data exist indicating that certain subgroups of the population are more at risk than others. . . ." Instead, adhering to the scientific base of data, SC-4 established two classes of exposure environment, controlled and uncontrolled. The Rationale states clearly, "The important distinction is not the population type, but the nature of the exposure environment." The terms "controlled environment" and "uncontrolled environment" are defined explicitly in Section 2. Definitions and Glossary of Terms of ANSI/IEEE C95.1-1992. Any interpretation of the guideline that equates controlled environment with occupational exposure and uncontrolled environment with general population exposure is a distortion of the standard and should be avoided. Further, any tendency by the Commission to equate ". . . aware of the potential for exposure as a concomitant of employment, by other cognizant persons. . . " with expertise obtained by formal training should also be recognized as a revision of the ANSI/IEEE "environmental" tiers into hazard-based "population" tiers that were explicitly rejected by SC-4 (e.g., Paragraph 12 and Footnote 16 of the NPRM).

8. The interpretation of the ANSI/IEEE exclusions for low-power devices offered by the Commission (Paragraph 16 and Footnote 16) that ". . . [they] will consider that hand-held portable devices . . . . . must comply with the requirements specified for uncontrolled environments. . ." is contrary to the reason for existence of the low-power exclusion. Further, such an interpretation involves invoking a population-based two tier concept that is contrary to the ANSI/IEEE concept (cf. 7 above). The exclusion as presented in the ANSI/IEEE C95.1 document is based upon a variety of measurements (cf. Section 6.10) that show the fundamental SAR limits to be satisfied with the possible exception, as noted in the guideline (Section 4.2 Exclusions), when the radiating structure is maintained within 2.5 cm of the body (body mount). It is specifically stated in the guideline (Section 4.2.1.1 Low-Power Devices: Controlled Environment) that ". . . this exclusion addresses exposure of the user. For such devices, the exposure of other persons in the immediate vicinity of the user will meet the exclusion criterion for the uncontrolled environment." In other words, when an excluded device meets the requirement of the controlled environment for the user/controller, who can be expected to be aware that the device emits an RF signal, the device also ipso facto satisfies the uncontrolled specification for the neighboring/adjacent non-user.

9. As noted in Item 6 above, the Working Group on Interpretations established by the members of SC-4 will be actively responding to requests for interpretation of ANSI/IEEE C95.1-1992 in the months and years ahead. This is an important new role for SC-4 members, attributable in large part to the complexity of the new C95.1 guideline relative to its predecessors. The 1993 IEEE Standards Operations Manual provides revised, but somewhat ambiguous, terms and procedures for the interpretation of standards documents. The Manual states in Section 5.9, "Copies of written interpretations will be forwarded by the Working Group to the Sponsor [SCC-28] for consideration as a supplement to the standard or for inclusion in the next revision." Further, the Manual states in Section 9.1.2, "Supplements are additions to existing standards and. . . (s)ince a supplement is a revision, it shall be processed as a revision in accordance with the requirements of these procedures, including submission to the IEEE Standards Board." The SC-4 Working Group on Interpretations brings these matters to the attention of the Commission to temper the expectation of rapid revisions of the standard.

10. In the event the Federal Communications Commission adopts the ANSI/IEEE C95.1-1992 guideline for evaluating the environmental effects of radiofrequency radiation, the IEEE - SCC 28 suggests that all subsequent interpretations or supplements to that guideline inhere to such adoption.